

2/11. The method of claim 10 wherein said predetermined protocol corresponds to a Local Area Network (LEX) protocol.

3/12. The method of claim 10 wherein said command message is transmitted to the first network device via the physical interface.

4/13. The method of claim 10 further including dynamically assigning the virtual interface to the selected physical interface.

5/14. The method of claim 10 further comprising:  
receiving the command message at the first network device;  
extracting the first command information from the command message; and  
performing, at the first network device, the first command in accordance with the first command information.

6/15. The method of claim 10 wherein the first network device is controllable by a user, and wherein the method further comprises controlling the first network device by the user via said virtual interface, without establishing a direct connection between the user and the first network device.

7/16. The method of claim 10 further comprising enabling the user to control operational aspects of the first network device by transmitting command instructions to the second network device.

8/17. The method of claim 10 further comprising controlling the second network device without using a network level address associated with the second network device.

9/18. The method of claim 10 wherein the first network device does not have a corresponding network level address.

10/19. The method of claim 10 further comprising:  
recording state information relating to at least one communication link associated with the selected physical interface;

decoupling the at least one virtual interface from the selected physical interface;  
binding the at least one virtual interface to a second physical interface, said second virtual interface comprising a communication link to the first network device; and  
using the recorded state information for communicating with the first network device via the second physical interface.

11  
20. The method of claim 10 wherein the first network device comprises a MAC address, and wherein the method further comprises using the MAC address of the first network device to communicate with the first network device.

sub 27  
21. A computer program product for controlling, via data network, a first network device using a virtual interface associated with a second network device, the computer program product comprising:

a computer readable medium, the computer readable medium comprising:  
computer code for binding the virtual interface with a selected physical interface;  
computer code for receiving, at the virtual interface, a first command instruction for controlling at least one operational aspect of the first network device;  
computer code for generating a command message, according to a predetermined protocol, using information from the a first command instruction; and  
computer code for transmitting, via the data network, the command message to the first network device to thereby cause the first network device to realize said first command instruction.

21  
22. The computer program product of claim 21 further comprising computer code for dynamically assigning the virtual interface to the selected physical interface. 11/13/00

29  
23. The computer program product of claim 21 further comprising:  
computer code for receiving the command message at the first network device;  
computer code for extracting the first command information from the command message;  
and  
computer code for performing, at the first network device, the first command in accordance with the first command information. 11/17/00

24. The computer program product of claim <sup>25</sup>31 wherein the first network device is controllable by a user, and wherein the computer program product further comprises computer code for enabling the user to control operational aspects of the first network device by transmitting command instructions to the second network device.

M.G.  
11/13/00

25. A system for controlling, via data network, a first network device using a virtual interface associated with a second network device, the system comprising:  
means for binding the virtual interface with a selected physical interface;  
means for receiving, at the virtual interface, a first command instruction for controlling at least one operational aspect of the first network device;  
means for generating a command message, according to a predetermined protocol, using information from the a first command instruction; and  
means for transmitting, via the data network, the command message to the first network device to thereby cause the first network device to realize said first command instruction.

26. A system for controlling a first network device in a data network, the system comprising:

a second network device having at least one virtual interface and at least one physical interface;

said at least one virtual interface associated with a selected physical interface of the at least one physical interface;

said at least one virtual interface further being configured to receive command instructions for controlling at least one operational aspect of the first network device;

said second network device being configured to generate a encapsulated command messages, according to a predetermined protocol, using information from the received command messages; and

said second network device being further configured to transmit, via the data network, the encapsulated command messages to the first network device to thereby cause the first network device to carry out commands relating to the received command instructions.

27. The system of claim <sup>26</sup>32 wherein said predetermined protocol corresponds to a Local Area Network (LEX) protocol.

M.G.  
11/13/00

28. The system of claim <sup>26</sup>32 wherein said second network device is further configured to transmit the encapsulated command messages to the first network device via the selected physical interface. 11/13/00 m.b.

29. The system of claim <sup>26</sup>32 wherein said second network device is further configured to dynamically assign the at least one virtual interface to the selected physical interface. 11/13/00 m.b.

30. The system of claim <sup>26</sup>32 wherein the first network device is configured to: receive encapsulated command message from the second network device; extract command instructions from the encapsulated command message; and implement actions in accordance with the command instructions. 11/13/00 m.b.

31. The system of claim <sup>26</sup>32 wherein the first network device does not have a corresponding network level address. 11/13/00 m.b.

32. The system of claim <sup>26</sup>32 wherein the second network device is a router.-- 11/13/00 m.b.